

**IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

- 1 1. (currently amended) A method for establishing an Internet Protocol (IP)-based  
2 Virtual Private Network (VPN) for a voice call between an originating point of a  
3 customer and a terminating point, the originating point associated with a first node and  
4 the terminating point associated with a second node, the method comprising the steps of:  
5 (a) determining the relative location of the terminating point with respect to the  
6 originating point, including collecting and analyzing dialed digits of the terminating point  
7 to determine whether a PSTN gateway function or an inter-VPN gateway function  
8 processes the voice call;  
9 (b) determining one or more IP addresses to propagate voice packets of the voice  
10 call from the originating point to the terminating point;  
11 (c) adding, at the first node, a VPN identifier to each voice packet of the voice  
12 call;  
13 (d) propagating the voice packets from the first node to the second node; and  
14 (e) removing, at the second node, the VPN identifier from each voice packet of  
15 the voice call;  
16 wherein the VPN identifier identifies a VPN of the customer.
- 1 2. (previously presented) The method of claim 1 wherein the VPN identifier is an  
2 extra field added to an encapsulation coding scheme of the voice packets.
- 1 3. (original) The method of claim 2 wherein the VPN identifier is an MPLS label.
- 1 4. (original) The method of claim 1 wherein the VPN identifier is a VPN identifier  
2 as specified in IETF RFC.2685.

- 1 5. (cancelled)
- 1 6. (cancelled)
- 1 7. (previously presented) The method of claim 1 wherein an IP address of the  
2 originating point is from an IP address space of the customer.
- 1 8. (previously presented) The method of claim 1 wherein an IP address of the  
2 terminating point is from an IP address space of the customer or an IP address space of  
3 another customer.
- 1 9. (currently amended) The method of claim [[6]] 1 wherein the PSTN gateway  
2 function assigns an IP address from an IP address space of the customer to represent a  
3 phone from a PSTN.
- 1 10. (currently amended) The method of claim [[6]] 1 wherein the inter-VPN gateway  
2 function assigns an IP address from an IP address space of the terminating point to  
3 represent the originating point, when communicating with the terminating point.
- 1 11. (currently amended) The method of claim [[6]] 1 wherein the inter-VPN gateway  
2 function assigns an IP address from an IP address space of the originating point to  
3 represent the terminating point, when communicating with the origination point.
- 1 12. (original) The method of claim 10 wherein the inter-VPN gateway function  
2 translates the IP address of the originating point to the assigned IP address when  
3 forwarding voice data to the terminating point.
- 1 13. (previously presented) The method of claim 11 wherein the inter-VPN gateway  
2 function translates the IP address of the terminating point to the assigned IP address when  
3 forwarding voice data to the originating point.

1 14. (currently amended) The method of claim [[6]] 1 wherein the dialed digits are a  
2 private number from a private numbering scheme of the customer.

1 15. (currently amended) The method of claim [[6]] 1 wherein the dialed digits are a  
2 public telephone number.

1 16. (currently amended) An apparatus for supporting IP-based VPN communications  
2 for a voice call between an originating point of a customer and a terminating point,  
3 comprising:

4 a soft-switch which processes call signaling messages from endpoints of the  
5 customer, wherein said soft-switch is adapted for collecting and analyzing dialed digits of  
6 said terminating point to determine whether a PSTN gateway function or an inter-VPN  
7 gateway function processes the voice call;

8 a packet switch having an interface to said soft-switch, said packet switch having  
9 a VPN processing module for establishing voice calls on a selection of originating and  
10 terminating IP addresses passed to said soft-switch and said packet switch, said packet  
11 switch adapted for operating as an ingress packet switch and an egress packet switch;

12 wherein said packet switch adds a VPN identifier to voice packets of a voice call  
13 when said packet switch is operating as an ingress packet switch for the voice call;

14 wherein said packet switch removes a VPN identifier from voice packets of a  
15 voice call when said packet switch is operating as an egress packet switch for the voice  
16 call;

17 wherein the VPN identifier identifies a VPN of the customer.

1 17. (previously presented) The apparatus of claim 16 wherein said soft-switch is  
2 adapted for operating as an ingress soft-switch and an egress soft-switch.

1 18. (cancelled)

- 1 19. (previously presented) The apparatus of claim 16 wherein said soft-switch
- 2 instructs said packet switch to perform call establishing functions selected from the group
- 3 consisting of:
- 4       creating call terminations and contexts;
- 5       attaching said call terminations to said context;
- 6       cross-connecting call terminations in a context;
- 7       mapping call terminations to connections.